What is claimed is:

1. An image processing device for displaying a picture of an object changing forms within a predetermined time frame, comprising:

storage means for storing spherical polygon data and planar polygon data forming said object; and

image generating means for reading said spherical polygon data and planar polygon data from said storage means and generating images of said object by combining spherical polygons and planar polygons.

2. An image processing device according to claim 1, wherein said image generating means sets the direction of the form change of said object and, by alternately arranging said spherical polygon data and planar polygon data along this direction as well as covering the boundary of planar polygons with spherical polygons, obtains images of said object.

3. An image processing device according to claim 2, wherein said object is an object representing an explosion.

4. An image processing device for displaying on a screen a picture of an object arranged within a virtual three-dimensional space seen from a virtual viewpoint, wherein said image

processing device generates pictures of form changes by alternately combining a three-dimensionally shaped object structured of three-dimensional polygons and a planar shape object structured of planar polygons and arranging such combination within a virtual three-dimensional space.

5. An image processing device according to claim 4, wherein said three-dimensionally shaped object and planar object are alternately arranged with the lapse in time.

6. An image processing device according to claim 4 or 5, wherein said three-dimensionally shaped object and planar object are erased in the order arranged with the lapse in time.

7. An image processing device for displaying a picture of an object changing forms within a predetermined time frame, comprising:

storage means for storing hierarchically, with respect to each possible form adoptable by said object, the relation between the plurality of structural elements structuring said object; and

image generating means for generating images of said object by selecting hierarchically one optional form among the plurality of forms adoptable by said object and reading from said storage means for each hierarchy the structural element corresponding to such form.

8. An image processing device according to claim 7, wherein said object is an object representing an explosion.

9. An image processing device for representing a series of motions of an object, comprising:

storage means for storing in advance the motion patterns of said object; and

image generating means for generating images of said object by alternately repeating, upon the motion pattern of said object changing, the step of performing motion interpolation processing of an object and displaying the result on the screen and the step of reading the motion pattern after the change from said storage means and displaying the result on the screen, and gradually decreasing the number of times said motion interpolation processing is performed.

10. An image processing device according to claim 9, wherein the change in motion pattern of said object is a change from an "attacking motion" to a "collapsing motion upon being shot."

11. An image processing device having storage means for storing motion pattern data of an object and capable of displaying a series of motions of an object by successively

reading in prescribed intervals said motion pattern data from said storage means, comprising:

image processing means that alternately repeats motion condition display processing for displaying images of an object by reading said motion pattern data from said storage means and interpolation processing for preparing interpolation data in order to perform interpolation between each motion and displaying in said prescribed intervals a picture of an object pursuant to this interpolation data, and decreasing per repetition the number of said interpolation data prepared.

12. An image processing device for displaying on a screen, upon a first object flying within a virtual three-dimensional space colliding with a second object arranged in said virtual three-dimensional space, a picture showing a change in the position of said second object, comprising:

storage means for storing coordinate values of said second object;

operation means for operating the moment said second object is subject to upon colliding with said first object and computing the coordinate values of the second object after collision; and

image generating means for renewing the coordinate values of the second object stored in said storage means pursuant to such calculation and generating images of the second object after collision.

13. An image processing device according to claim 12, wherein said image generating means calculates the coordinate values of the second object after said collision so as to change the two-dimensional position of the second object seen from a virtual viewpoint.

14. An image processing device according to claim 12 or 13, wherein said first object is a bullet and said second object is an enemy character.

15. An image processing device for displaying on a screen a picture of the position change of said second object seen from a virtual viewpoint when a first object moving within a virtual three-dimensional space contacts a second object arranged within said three-dimensional space, wherein said image processing device sets the changed position of said second object to a direction other than the line of sight from said virtual viewpoint.

16. An image processing device for displaying a series of motions of an object, comprising:

first storage means for storing priorly divided motion patterns of said object as a plurality of motion steps;

image generating means for reading the motion patterns from said storage device and displaying the same on a screen;

detecting means for detecting changes in the motion patterns of said object;

first image controlling means for storing identification information of said motion step in the second storing means upon said detecting means detecting a motion change in said object and controlling said image generating means such that it reads other motion patterns from said first storage means and displays the same on the screen; and

second image controlling means for making said image generating means perform, upon completion of displaying images of said other motion patterns, a motion pattern of a transition of a motion step of said object pursuant to said identification information stored in said second storage means.

17. An image processing device according to claim 16, wherein said object is an "enemy character," said prescribed motion pattern is an "attacking motion," and said other motion pattern is a "collapsing motion upon being shot."

18. An image processing device for displaying on a screen an image of a first object moving within a virtual space seen from a virtual viewpoint of a second object operated by a player, comprising:

storage means for storing in advance motion patterns of said first object;

means for calculating the distance between said first object and second object and computing a synthetic vector by adding to the speed vector of said first object the vector calculated by multiplying the coefficient corresponding to said distance to the inverse vector of the speed vector of said second object; and

image generating means for reading transition patterns from said storage means and generating images of the speed vector of said first object as said synthetic vector.

19. An image generating device according to claim 18, wherein said coefficient is a coefficient having an inverse proportion to said distance.

20. An image generating device according to claim 19, wherein said first object is a "bullet."

21. An image processing device for judging the collision between a first object moving within a virtual space and a second object arranged within said virtual space, comprising:

storage means for storing, upon said virtual space being partitioned per unit grid pursuant to three-dimensional coordinates, said second object existing within said unit grid in correspondence with each unit grid; and

collision judgment means for performing a step of judging the unit grid in which said first object exists and a step of judging the collision between the second object in the unit grid in which said first object exists and the first object.

22. An image processing device according to claim 21, wherein said collision judgment means models said first object as a line segment polygon, models said second object as a planar polygon, and thereby performs collision judgment according to the intersection of said line segment and said plane.

23. An image processing device according to claim 21 or 22, wherein said collision judgment means sets a virtual three-dimensional space around the perimeter of said second object and performs said collision judgment by dividing said three-dimensional space into unit grids.

24. An image processing device according to any one of claims 21 through 23, wherein said first object is a "bullet."

25. An image processing device for displaying on a screen a picture of changes in said second object seen from a virtual viewpoint when a first object moving within a virtual three-dimensional space contacts a second object arranged or

moving within said three-dimensional space, comprising:

collision judgment means for partitioning said virtual three-dimensional space into unit grids pursuant to three-dimensional coordinates, calculating the unit grid in which said first object exists, and judging the collision between the second object existing within the calculated unit grid and said first object.

26. An image processing device according to claim 25, wherein said collision judgment means judges the collision between the polygons forming the second object existing within the calculated unit grid and said first object.

27. An image processing device according to claim 25 or 26, wherein said collision judgment means sets a second three-dimensional space around the perimeter of said second object, partitions said second three-dimensional space to a second unit grid pursuant to the second three-dimensional coordinates set in said second three-dimensional space, judges said second unit grid in which said first object exists, and judges the collision between the polygons within the judged second unit grid and said first object.

28. An image processing device for displaying on a screen an object representing the movement of the surface of a flowing

body, comprising:

storage means for storing in advance changing patterns representing changes in the surface of said flowing body; and

image generating means for forming said object as an aggregate of polygons along a prescribed direction of said flowing body and generating images of said object by reading said changing patterns from said storage means and changing the length of said polygon along said prescribed direction.

29. An image processing device according to claim 28, wherein the movement of said flowing body is a "wave movement."

30. An image processing device for executing games having a plurality of stages, wherein the first stage and final stage are predetermined, and the intermediate stages may be suitably selected in correspondence with the player's game progress.

31. An image processing device for arranging within a virtual three-dimensional space an object formed of a plurality of polygons and displaying on a screen the picture of said object seen from a virtual viewpoint, comprising:

image generating means for generating images of scattering a section of the polygons among the group of polygons forming said object; and

judging means for judging whether or not to erase said object from said virtual three-dimensional space;

wherein said image generating means changes the scattering direction of said section of polygons in accordance with the judgment results of said judging means.

32. A computer-readable information recording medium storing a program capable of making a computer function as the image processing device according to any one of claims 1 through 31.

33. A vibration generating device, comprising:

a storage unit for storing vibration waveform data registered upon being associated in advance to each object; and

a controlling unit for reading vibration waveform data associated with said object when a prescribed event occurs to said object and generating vibrations by outputting such data to the vibration generating device.

34. A vibration generating device according to claim 33, wherein said vibration generating device is a low frequency sound vibration device.